WHAT IS CLAIMED IS:

1. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least 85 wt.% protein on a dry solids basis; and the modified oilseed material has an MW_{50} of at least 200 kDa; and at least 40 wt.% of the protein in a 50 mg sample of the modified oilseed material is soluble in 1.0 mL water at 25°C.

2. The frozen dessert composition of claim 1 wherein said frozen dessert composition is a pasteurized frozen dessert composition.

3. The frozen dessert composition of claim 1 wherein said frozen dessert composition has a pH of about 3.5 to 5.0.

4. The frozen dessert composition of claim 1 comprising about 1 to 10 wt.% protein.

5. The frozen dessert composition of claim 1 comprising about 10 to 30 wt.% protein on a dry solids basis.

6. A protein supplemented frozen dessert composition comprising a modified soybean material, sugar, and water;

wherein the modified soybean material comprises at least 90 wt.% protein on a dry solids basis; and the modified soybean material has an MW_{50} of at least 400 kDa and at least 40 wt.% of the protein in a 50 mg sample of the modified soybean material is soluble in 1.0 mL water at 25°C.

7. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material is produced by a process which includes:

extracting oilseed material with an aqueous alkaline solution to form a suspension of particulate matter in an oilseed extract; and

passing the extract through a filtration system including a microporous membrane to produce a permeate and a protein-enriched retentate, wherein the microporous membrane has a filtering surface with a contact angle of no more than 30 degrees.

8. The frozen dessert composition of claim 7 wherein the modified oilseed material is produced by a process which includes:

extracting soybean material at 20°C to 60°C with an aqueous solution having a pH of 7.5 to 10.0 to form a mixture of particulate matter in an alkaline extract solution;

removing at least a portion of the particulate matter from the mixture to form a clarified extract;

passing the clarified extract at 55°C to 60°C through a filtration system including a microporous modified polyacrylonitrile membrane to produce a permeate and a protein-enriched retentate, wherein the microporous modified polyacrylonitrile membrane has an MWCO of 25,000 to 500,000 and a filtering surface with a contact angle of no more than 30 degrees; and

diafiltering the protein-enriched retentate through the filtration system to produce a protein-containing diafiltration retentate.

9. The frozen dessert composition of claim 8 wherein the modified oilseed material is produced by a process which further includes heating the diafiltration retentate to at least 75°C for a sufficient time to form a pasteurized retentate.

10. The frozen dessert composition of claim 8 wherein the modified oilseed material is produced by a process which includes extracting the soybean material at 20°C to 60°C for no more than one hour with the aqueous solution to form the mixture.

11. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; and the modified oilseed material has a bacterial load of no more than 50,000 cfu/g and a melting temperature of at least 87°C.

12. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; and the modified oilseed material has an MW_{50} of at least about 200 kDa and a turbidity factor of no more than about 0.95 at 500 nm.

13. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; and the modified oilseed material has an MW_{50} of at least about 200 kDa and has an NSI of at least about 80.

14. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; at least about 40 wt.% of the modified oilseed material has an apparent molecular weight of at least 300 kDa; and the modified oilseed material has a turbidity factor of no more than about 0.95 at 500 nm.

15. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; the modified oilseed material has an MW_{50} of at least 200 kDa and at least 40 wt.% of the protein in a 50 mg sample of the modified oilseed material is soluble in 1.0 mL water at 25°C.

16. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; and the modified oilseed material has a bacterial load of no more than 50,000 cfu/g and a melting temperature of at least 87°C.

17. A protein supplemented frozen dessert composition comprising a modified oilseed material, wherein the modified oilseed material comprises at least about 85 wt.% protein on a dry solids basis; at least about 40 wt.% of the modified oilseed material has an

apparent molecular weight of at least 300 kDa; and at least about 40 wt.% of the protein in a 50 mg sample of the modified oilseed material is soluble in 1.0 mL water at 25°C.

18. The frozen dessert composition of claim 17 wherein the modified oilseed material has a turbidity factor of no more than about 0.95 at 500 nm.

19. The frozen dessert composition of claim 17 wherein the modified oilseed material has an NSI of at least about 80.

20. The frozen dessert composition of claim 17 wherein the modified oilseed material is a modified soybean material which includes at least about 90 wt.% protein on a dry solids basis.

21. The frozen dessert composition of claim 17 wherein the modified oilseed material has a melting temperature of at least about 87°C.

22. The frozen dessert composition of claim 17 wherein the modified oilseed material has an MW_{50} of at least about 400 kDa.

23. The frozen dessert composition of claim 17 wherein the modified oilseed material includes at least about 1.4 wt.% cysteine as a percentage of total protein.

24. The frozen dessert composition of claim 17 wherein the modified oilseed material is a soy protein isolate having a substantially bland taste.

25. The frozen dessert composition of claim 17 wherein the modified oilseed material has a dry Gardner L value of at least about 85.

26. The frozen dessert composition of claim 17 the modified oilseed material has a bacterial load of no more than about 50,000 cfu/g.

27. The frozen dessert composition of claim 17 wherein the modified oilseed material has a latent heat of at least about 5 joules/g.

28. The frozen dessert composition of claim 17 wherein the modified oilseed material has a ratio of sodium ions to a total amount of sodium, calcium and potassium ions of no more than about 0.5.

29. The frozen dessert composition of claim 17 wherein the modified oilseed material has no more than about 7000 mg/kg (dsb) sodium ions.